scopic and other investigations on the spleen of men and animals, the following conclusions:—

The spleen is an organ which nature has destined to preside over the material composition of the blood. It receives into its vessels blood loaded with solid matters for elimination; these are the used-up epithelial cells and red globules, which are assimilated in it, and reduced into new principles of nutriment.

1. The anatomical elements of the spleen are blood and lymphatic vessels, to which are united the Malpighian corpuscles, the fibrous structure, the microscopic web, and the splenic fluid.

2. That it is not credible that the vessels of the spleen (looking at their size as compared with that of the organ) are destined only for its nutrition.

3. This is confirmed by observing that in other organs in which the blood has to undergo a modification there exist two orders of afferent vessels, *i. e.* the pulmonary and bronchial arteries for the lung, the hepatic artery and portal vein, for the liver.

4. Similarly, these two orders of vessels must be recognized in the spleen: the first comprises the nutrient vessels; the second, those which carry into the venous system the blood loaded with eliminable materials.

5. The special conformation of the splenic venous canal of ruminants, visible from the point of their entrance into the organ, has reference not only to the form of the canal, but also to the structure of its walls.

6. To the form, which is cylindrical, but irregular from hollows and projections, to which he gives the name of splenic productions.

7. To the structure, inasmuch as the parietes of the veins are formed by the red substance of the organ, together with a most subtle and transparent membrane, which divides it from immediate contact with the blood.

8. This membrane, organized like that of the capillaries, performs the office of a filter, and gives passage to the red globules of the blood, which are rendered inactive as well as the epithelial bodies.

9. This structure, so visible in the large venous trunks of the spleen of ruminants, is verified also in that of the horse, pig, and lastly, in the human spleen.

10. The communication between the arteries and veins of the second category, by the intervention of a capillary system, is effected by channels so ample as to permit the easy passage of bodies as large as the one-third of a millimetre.

11. The spleen pulp otherwise is not a dense liquid, but an assemblage of fusiform nucleated cells, involuted or folded on themselves, isolated nuclei, and red blood-globules, which elements are contained in a most delicate areolar web.

12. The presence of the Malpighian bodies is undoubted.

13. The structure of the spleen presents no resemblance to the cavernous bodies.

14. The microscopic web, with its areolæ, is in direct communication with the venous cavity, by the porosities of the stratum limiting the isolated or confluent splenic productions.

15. The same web is in communication with the lymphatics.

16. The epithelial bodies!! detached from the walls of the vascular system, and mixed with the circulating blood, are brought by the artery into the splenic tissue, in which there is every reason to believe that they are arrested.

17. The same happens to the worn-out blood-globules.—*British and Foreign Medico-Chirurgical Review*, July, 1853.

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5. *Capillaries of the Liver.*—Mr. Rainey writes to the editor of the *Journal of Microscopical Science*, p. 231, as follows:—

"In the last part of Todd and Bowman's *Physiological Anatomy*, a doubt is expressed concerning the nature of the ultimate passages through which the blood circulates in the liver. Whether the smallest bloodvessels of this organ are true capillaries; that is, are possessed of a single tunic like other vessels of this description, or whether the blood passes along mere spaces or channels formed by the hepatic corpuscles, so as to be in actual contact with their cell-walls, is regarded by these authors as a question yet to be decided.

"Having at this time in my possession a portion of injected human liver, in which I have no difficulty in showing the smallest capillaries, and in demonstrating their tunic, the following observations will, I hope, be considered worthy of a place in your valuable Journal; first, because any doubt proceeding from such high authorities cannot fail to unsettle a point of minute anatomy which the microscope has satisfactorily established; and secondly, because the supposed fact of mere blood-channels existing in the liver, whilst true capillaries are demonstrable in other glands, seems to depart too widely from a general law to have even the sanction of probability in its favour.

"The examination necessary to show the capillaries of the liver is best made on a very thin slice of injected liver, taken from a part where the injection begins to fail; but, before examining this section, it must have been submitted to a gentle current of water, in order that the biliary corpuscles may be entirely washed away from the meshes of those capillaries which project from the thinnest part of it.

"In respect to their structure, these capillaries differ but little from those of other parts. Their caliber in the liver I have always observed to be very unequal, arising most probably from the manner in which they are compressed by the corpuscles which lie in immediate contact with their walls, and fill up the areolæ produced by their numberless inosculations. Their average diameter is about 1-3000th part of an inch. Their tunic is remarkably thin and transparent. The meshes are generally circular or oval, and about 1-1000th of an inch in diameter.

"The difficulty of displaying the capillaries of the liver, I believe to arise from the close connection of the hepatic corpuscles with their walls (there being in this organ no visible basement-membrane), and the extreme fragility of the latter; so that the means employed to remove the corpuscles from the meshes of the capillaries will break away the vessels also. This, I think, will not be so likely to take place if the part have been kept a few days before being examined, and be treated in the manner above described."—*Assoc. Med Journ.* June 3, 1853.

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6. *Temperature of the Blood.*—The results of former investigators on the difference in temperature between arterial and venous blood, have shown that there is usually a difference of about .5° C. in favour of arterial blood, comparing generally the jugular and the carotid, or the opposite ventricles of the heart. A series of extensive and very accurate researches made by LIEBIG,[1] son of the renowned Munich Professor, have shown, on the contrary, that venous blood is warmer than arterial under all circumstances, the average of the maxima and minima being .07° to .19° C. The experiments, which were made on living or recently-killed animals, were conducted in the following way: A dog was killed, and a ligature tied tightly round the neck, to prevent the lungs from collapsing. In this way, as the pulsations of the heart lasted a short time longer, some of the blood would be arterialized by the air in the lungs, and some arterialized blood would therefore always be found in the left side of the heart. The thorax was then opened, by as small an opening as possible, the aorta tied at its bend, and the vena cava superior close to the auricle; then, the dog being raised, and the ligatures drawn upwards, in order to make the opening in the vessels at the highest point, thermometers were passed into the two ventricles down the artery and vein. After the introduction of the thermometers, cotton-wool was placed in the opening of the thorax, in order to prevent any real difference between the temperature of the blood occurring from the difference in the thickness of the two ventricles. In the experiments conducted on living animals, thermometers were introduced by the carotid artery and jugular vein into the heart.

The conclusions that may be drawn from these experiments may be divided into three heads:—

1. The difference of temperature between the two kinds of blood.
2. The temperature at different parts of the same system.
3. The changes of temperature at one and the same level of the arterial or venous system.

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[1] Liebig, Georg, Ueber die Temperaturunterschiede des Venösen und arteriellen Blutes, Giessen, 1853.